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Taxonomic paper

A new species of *Lygistorrhina* Skuse (Diptera: Sciaroidea: Lygistorrhinidae) from South Africa

Vladimir Blagoderov†, Laszlo Papp‡, Heikki Hippa§

† The Natural History Museum, London, United Kingdom
‡ Natural History Museum Hungary, Budapest, Hungary
§ Swedish Museum of Natural History, Stockholm, Sweden

Corresponding author: Vladimir Blagoderov (vblago@gmail.com)

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Abstract

A new species of *Lygistorrhina* (Diptera, Sciaroidea, Lygistorrhinidae) from South Africa is described and a key for Afrotropical species of the genus is provided.

Keywords

Taxonomy, new species, South Africa, Lygistorrhinidae

Introduction

Lygistorrhinidae is a small family of fungus gnats (Diptera, Sciaroidea) represented by 15 genera and 41 species (http://sciaroidea.info/taxonomy/41555). The genus *Lygistorrhina* includes 21 species which are distributed worldwide in tropical and warm temperate regions. Twelve species of the subgenus *Lygistorrhina* (*L.*) are known from the Old World (Africa, Eastern Palaearctic, South East Asia, Australasia and Oceania). In addition, an undescribed species of the subgenus was reported from Mexico (Huerta and Ibanez-Bernal 2008). Five Afrotropical species of *Lygistorrhina* (*L.*) were described from Kenya, Uganda, Côte d'Ivoire, Central African Republic, Gabon, Democratic Republic of Congo

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and Comoros (Matile 1978, Matile 1990, Matile 1996). In addition, an unnamed species is known from Madagascar (Matile 1996). In this paper we describe a new species of *Lygistorrhina* from South Africa in course of preparation of the chapter on Lygistorrhinidae for the Manual of Afrotropical Diptera.

Materials and methods

Descriptive terminology follows Söli 1997 and vein nomenclature Shcherbakov et al. 1995. Images of the pinned holotype were taken with an Olympus CP350 compact camera and eyepiece adapter on a stereomicroscope at the Hungarian Museum of Narural History, Budapest (HMNH). Paratypes were originally pinned; one of them was dissected, its wings mounted without media on a microscope slide, and the body was cleared in KOH and stored in glycerol. Details of the paratype were imaged in the Sackler Biodiversity Imaging Lab at the Natural History Museum, London by us of a Canon 450D camera attached to Zeiss Axioskop compound microscope. Additional images and materials are available at the Fungus Gnats Online web-site. All types are held in the HMNH.

Taxon treatment

Lygistorrhina austroafricana Blagoderov, Papp & Hippa, 2013, sp. n.

- ZooBank FA4CBFA7-1879-43C4-B277-74490A772FDD
- Fungus Gnats Online http://sciaroidea.info/taxonomy/term/50837

Materials

Holotype:

a. country: South Africa; stateProvince: Eastern Cape Province; verbatimLocality: Bloukrans Pass, in a side valley; verbatimElevation: 70 m; verbatimLatitude: 33° 57'09.6" S; verbatimLongitude: 23° 37' 59.4" E; eventDate: 2007-01-14/16; individualCount: 1; sex: male; catalogNumber: FGO50909; recordedBy: L. Papp & M. Földvári; institutionCode: HMNH; collectionCode: Diptera

Paratypes:

a. country: South Africa; stateProvince: Eastern Cape Province; verbatimLocality: Bloukrans Pass, in a side valley; verbatimElevation: 70 m; verbatimLatitude: 33° 57'09.6" S; verbatimLongitude: 23° 37' 59.4" E; eventDate: 2007-01-14/16; individualCount: 2; sex: male; catalogNumber: FGO50910; recordedBy: L. Papp & M. Földvári; institutionCode: HMNH; collectionCode: Diptera

b. country: South Africa; stateProvince: Eastern Cape Province; verbatimLocality: Bloukrans Pass, in a side valley; verbatimElevation: 70 m; verbatimLatitude: 33° 57'09.6" S; verbatimLongitude: 23° 37' 59.4" E; eventDate: 2007-01-14/16; individualCount: 2; sex: male; catalogNumber: FGO50911; recordedBy: L. Papp & M. Földvári; institutionCode: HMNH; collectionCode: Diptera

Description

Male. Measurements (mm). Head height 0.38, palpi 0.65, proboscis 1.05, antenna 0.9, thorax length 0.63, thorax height 0.71, metepisternum anterior margin 0.15, posterior margin 0.25; coxa 1 0.53; coxa 2 0.47; coxa 3 0.4; wing 1.9.

Colouration. Body, head and antennae entirely dark brownish-grey, almost black, halters yellowish, legs yellowish-brown.

Head (Fig. 7) rounded, vertex slightly convex. Head dichoptic, oval. Ommatidia round, very densely set, equal in size. Interocular setae as long as the diameter of ommatidia. Three ocelli, almost in a straight line, equal in size, set each on its own mound, lateral facing to the sides, medial facing forward. Antenna (Fig. 4) with scape 1.3x shorter than wide, with ventral setae, pedicel spherical, with whorl of setae apically, flagellum 14-segmented, moniliform, flagellomeres with length 1.5x the width, covered with setae 0.5x the width of flagellomeres, flagellomeres 1–11 with a few slightly longer dorsal setae. Bases of setae on flagellomeres form round depressions. Circular bases of flagellomere setae connected with folds forming polygonal pattern. Face as long as wide, with ventral and lateral setae. Clypeus rounded at apex, its length 1.5x the width. Palpi long, 0.6x the length of proboscis, tapering, with a single row of setae in apical 2/3. Proboscis evenly curved caudally, its length 2x the length of fore coxa. Lingua of hypopharynx very thin, transparent, tapering, with very thin hair at each side, longest at tip.

Thorax, legs, and abdomen uniformly dark brown (Fig. 1). Scutum (Fig. 2) evenly covered with setae of medium length, with longer supraalar setae. Scutellum short, without long setae. Postpronotum apparent, wide. Antepronotum and proepisternum both with 8 setae. Anterior margin of notum well anterior to fore coxa. Ventral margin of preepisternum 2 widely rounded. Metepisternal cleft deep, posterior margin of metepisternum longer than anterior, not extending the level of laterotergite. Laterotergite with a posterior row of 6 long setae. Mediotergite very convex.

Figure 1.

L. austroafricana, photograph of holotype (HMNH - Diptera - FGO50909).

Figure 2.

L. austroafricana, thorax and abdomen of a paratype (HMNH - Diptera - FGO50910), lateral, photograph. Scale: 0.5 mm.

Wing (Fig. 3) hyaline, moderately wide, costal margin slightly convex. Microtrichia on membrane long (0.02 mm), overlapping. Costa with long setae, ending at 3/4 distance between R_5 and M_1. Sc ending at C. R_1 and R_5 slightly sinusoid, setose dorsally and ventrally. Crossveins *r-m* and *tb* weak but distinct. M_1 and M_2 straight, the base of their fork is reduced, M_2 begins more proximally than M_1. M_{3+4} and CuA evenly curved caudally, slightly diverging.

Figure 3.

L. austroafricana, wing of a paratype (HMNH - Diptera - FGO50910), photograph. Scale: 0.5 mm.

Figure 4.

L. austroafricana, scape and basal flagellomeres of a paratype (HMNH - Diptera - FGO50910), photograph. Scale: 0.1 mm.

Legs (Fig. 5). Fore coxa is the longest, mid coxa a little shorter. Tibial and tarsal setae not in rows. Number of tibial spurs on fore, mid and hind tibia 1:2:2, fore tibia tibial spur short, ca. 1.5x the tibia diameter, mid and hind tibial spurs with inner spur longer, 1.7x and 1.4x the outer, respectively. Hind tibia expanded apically. Fore and mid tarsal claws blunt, curved, with a very small incision at apex and setiform curved basal process as long as the claw. Hind tibia claw pointed, almost straight, with shorter basal process.

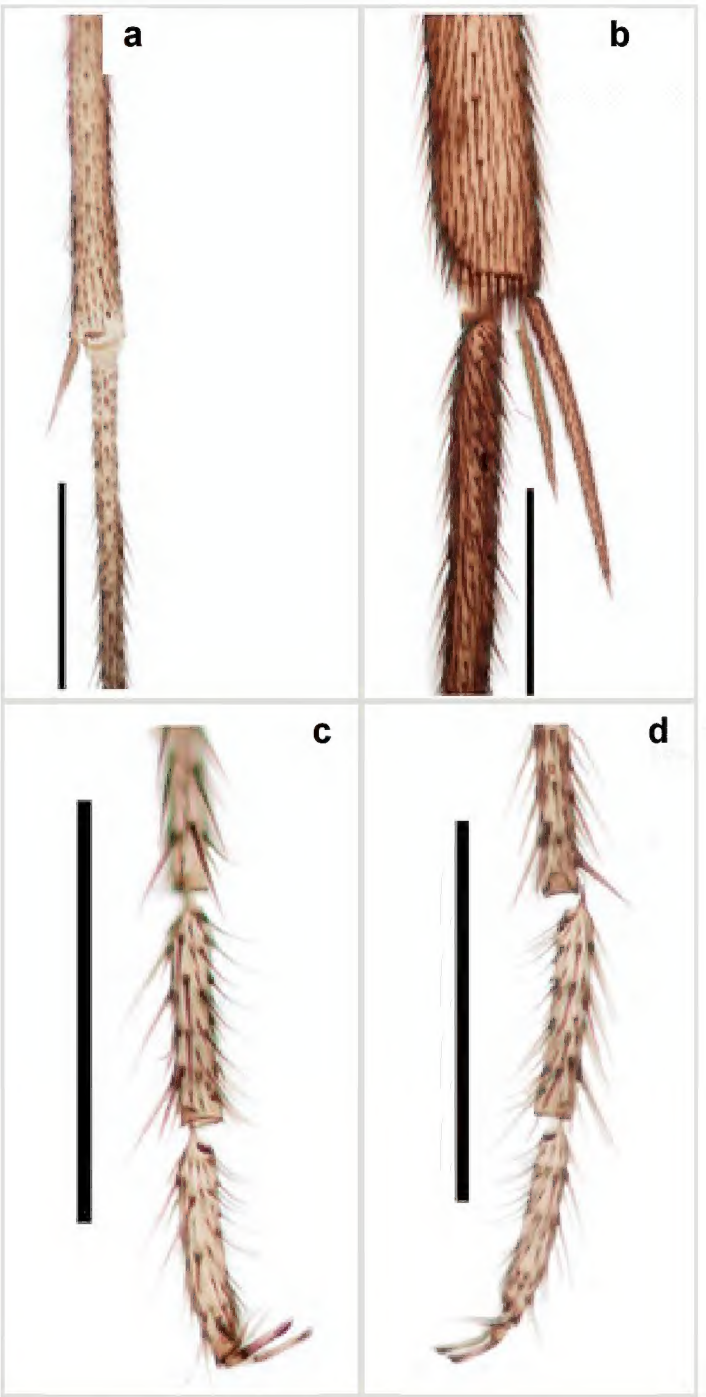

Figure 5.

L. austroafricana, legs of a paratype (HMNH - Diptera - FGO50910), photograph. Scale: 0.1 mm.

a: tip of fore tibia
b: tip of mid tibia
c: apical tarsomeres of fore tarsus
d: apical tarsomeres of mid tarsus

Terminalia (Figs 6, 8). Tergite 9 (Figs 6c, d, 8) roughly arrow-shaped with rounded apex, length 0.17 mm, width 0.15 mm, with long scattered setae and a dense patch of short setae at apex. Apodeme of tergite 9 with short, narrow stalk, a little wider that ½ width of the tergite, with two strong semicircular anterior arms. Gonocoxites fused ventrally, with a deep incision, almost reaching the base of synsclerite (Fig. 6b). Synsclerite length 0.2 mm, width 0.26 mm. Gonostyli simple, length 0.13 mm, with a dorsoapical scoop-shaped tooth. Long flagellate setae on mediodorsal edge of gonostylus slightly shorter than gonostylus.

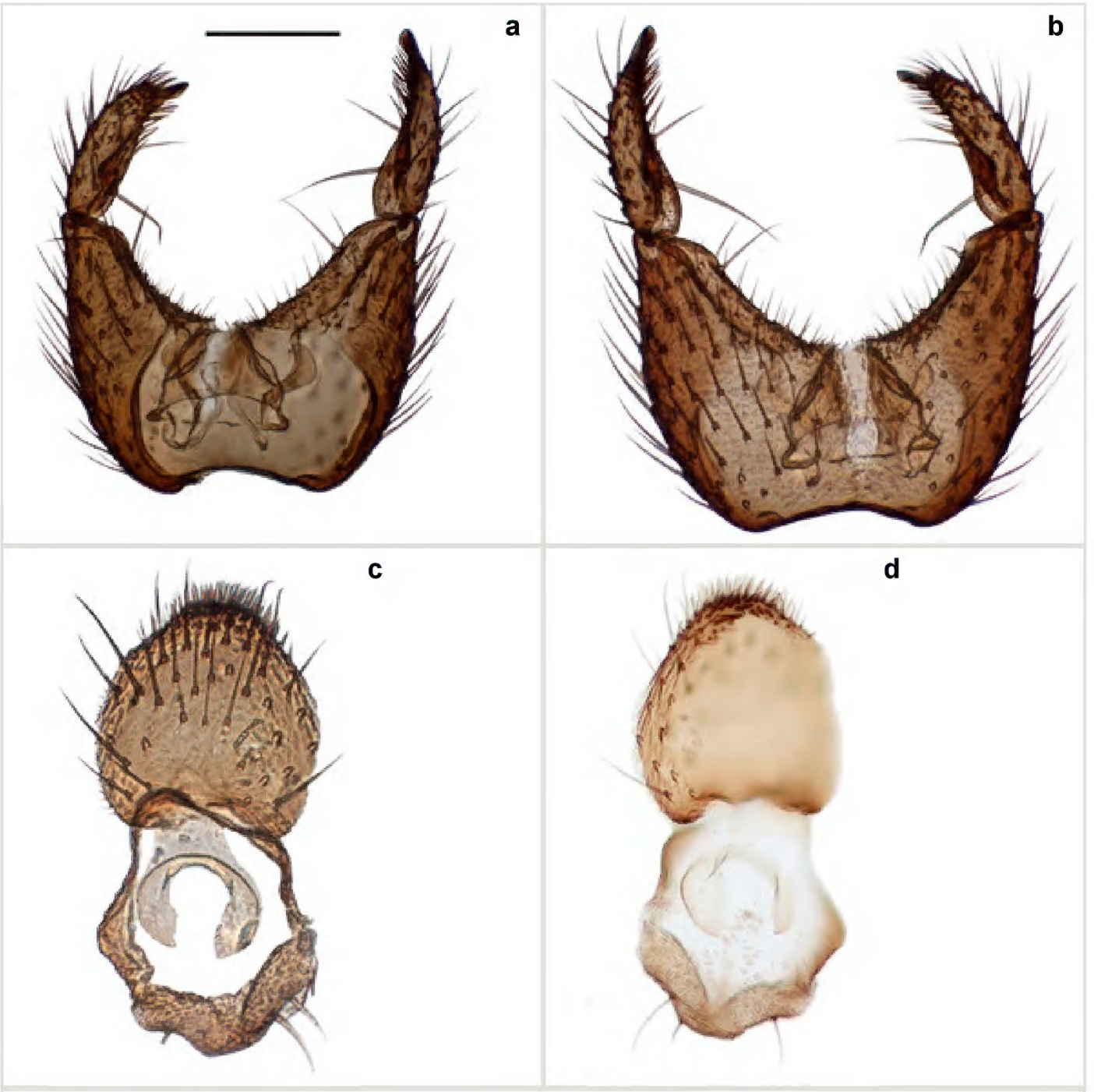

Figure 6.

L. austroafricana, male terminalia of a paratype (HMNH - Diptera - FGO50910), photograph.

a: gonocoxites and gonostyli, dorsal view. Scale: 0.1 mm.
b: gonocoxites and gonostyli, ventral view
c: Tergite 9, dorsal view
d: Tergite 9, ventral view

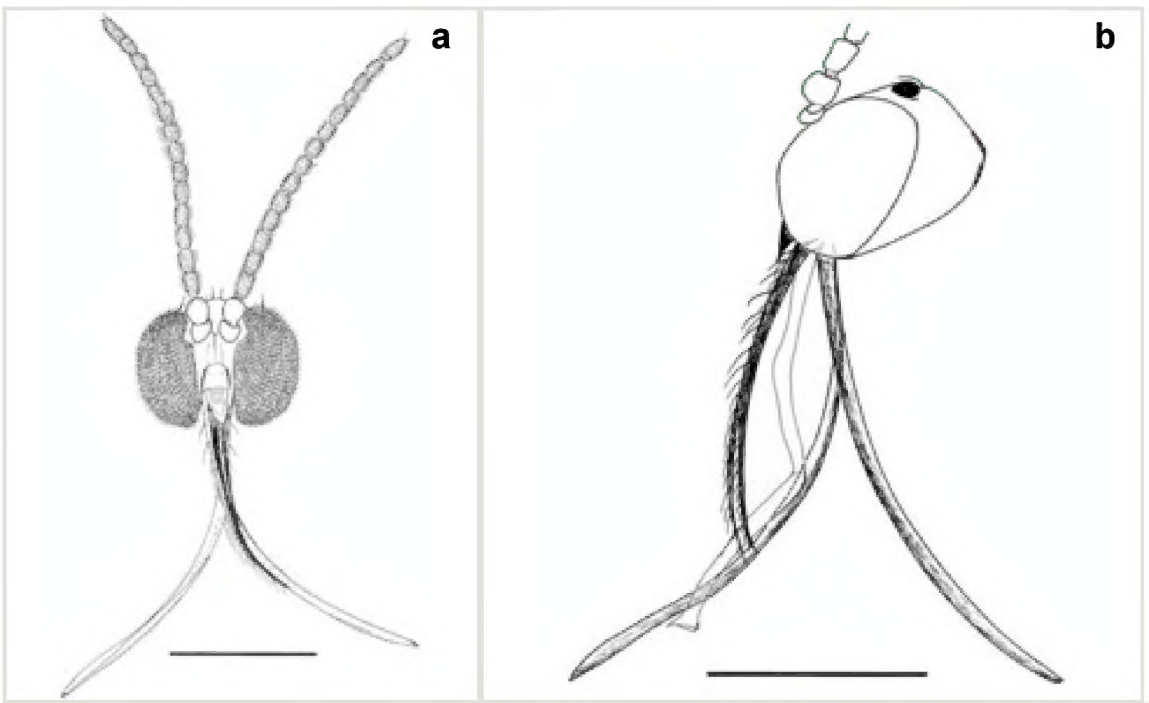

Figure 7.

L. austroafricana, head, line drawing. Scale: 0.5 mm.

a: frontal view

b: lateral view

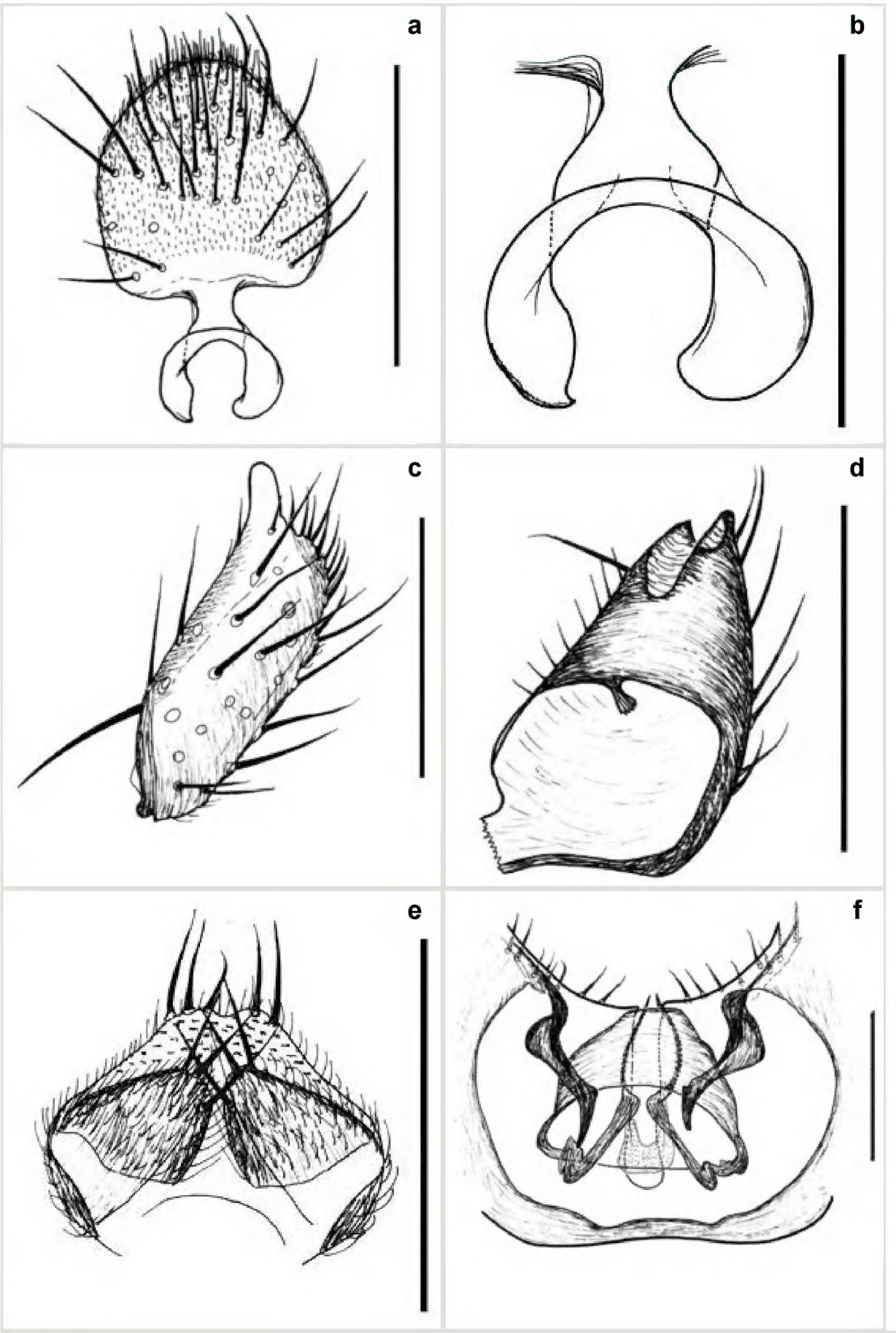

Figure 8.

L. austroafricana, male terminalia, line drawing. Scale: 0.1 mm (a, c-f), 0.05 mm (b).

a: Tergite 9, dorsal view
b: apodeme of tergite 9, dorsal view
c: gonostylus, dorsal view
d: gonocoxite, posterior view from base, dorsal surface to right
e: cerci
f: aedeagal complex

Female. Unknown.

Diagnosis

The species differs from all Afrotropical species of *Lygistorrhina* in being smaller (wing length <2 mm), uniformly coloured very dark brownish-grey to black, and having shorter proboscis, which is at most 2x the length of coxa 1. *Lygistorrhina austroafricana* is most similar to *L. edwardsina* Grimaldi & Blagoderov, 2001 (Grimaldi and Blagoderov 2001), but differs in having a wider wing (length/width ratio 2.4 vs 2.7 in *L. edwardsina*) with shorter Sc (0.24x the wing length vs 0.33x) and shorter and wider tergite 9, with stronger anterior arms of apodeme. *L. magna* Matile, 1996 (Matile 1996) also has a uniformly dark coloured body and wide apodeme of tergite 9, but it is a much larger fly (wing length 4.8 mm), and tergite 9 apodeme with stem wide and anterior arms not developed.

Etymology

The specific epithet is an adjective in reference to the place of origin of the specimens.

Distribution

South Africa: Eastern Cape.

Identification keys

Key to Afrotropical *Lygistorrhina* (based on Matile 1990, Matile 1996)		
1	Wings with distinct brown spots	2
–	Wings hyaline or smoky, without distinct spots; antennae monochromatic, brown or yellow, at least the first four flagellomeres significantly longer than wide	3
2	Antennae flagellomeres 1–4 brown, 5 orange, 6 bright yellow, 7–11 brown, 12 bright yellow, 5–13-14 light brown; flagellomeres 1–4 twice as long as wide, 5–12 – approximately as long as wide. Gonostili slender, with apical tooth length twice its width. Côte d'Ivoire	*L. hamoni* Matile, 1996
–	Antennae yellow, with flagellomeres 1–3, 7–11 and 14 brown; flagellomeres with length equal to width, except the last two, which are significantly longer than wide. Gonostyli wide, with apical tooth as long as wide. Gabon, Central African Republic	*L. legrandi* Matile, 1990
3	Wings uniformly brownish	4
–	Wings hyaline or very faintly smoky at the apex	5

4	Antennae up to twice the length of the thorax and head together; proboscis yellow; subcosta short obliterated at apex, femora and tibiae brownish yellow, abdominal segments brown with yellowish white edges. Grande Comore	*L. nassreddinei* Matile, 1979
–	Antennae not longer than head and thorax together; proboscis brown; subcosta longer; ending on costa, femur and tibia dark brown; abdomen uniformly brown. Zaire	*L. magna* Matile, 1990
5	Antennae entirely dark	6
–	Antennae entirely yellow; wings hyaline; tibial spurs II equal and shorter than apical width of tibia; internal tibial spur III twice the width of tibia apex. Madagascar	L. sp. (Matile, 1990: 369)
6	Wings very weakly smoky at apex; thorax and abdomen brown to dark brown; proboscis 4x the length of coxa I; tergite 9 elongated, its apodeme thin, with narrow stem; internal tibial spur III 3x the width of tibia apex. Uganda, Kenya, Tanzania, Zaire	*L. edwardsina* Matile, 1990
–	Wings hyaline; body very dark brown, almost black, proboscis ~2x the length of coxa I; tergite 9 of male roughly rounded, its apodeme very wide and thick; internal tibial spur III 2.4x the width of tibia apex. South Africa	*L. austroafricana* sp. n.

Acknowledgements

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